

R E M A R K S

Claim 23 has been amended. Claims 1-22 and 24-29 stand as originally filed.

Claims 1-29 were considered in the Office Action.

5 Claims 1-29 stand provisionally rejected under the judicially created doctrine of double patenting over claims 1-15 of Application No. 09/532,696. Claims 1-2, 7-11, 13, 20, 23, 24, 26 and 29 stand rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent 6,486,945 (Haerle). Claims 1-29  
10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,065,007 (Tanaka) in view of U.S. Patent 5,471,052 (Ryczek).

A terminal disclaimer has been filed concurrently herewith in response to the provisional double patenting  
15 rejection.

The Invention of Claim 1

The cited references do not disclose or suggest:

"An image capture device, comprising:

an illumination source;

20 **a model of said illumination source having a model output; and,**

**an exposure adjustment that is changed to compensate for changes in said illumination source as indicated by said model output."**

25 (Claim 1, emphasis added)

The above highlighted features which differentiate the present invention from the cited references are features that are not anticipated by the cited references and would not have

been obvious to a person with ordinary skill in the art having the cited reference. Applicants respectfully disagree that the "central unit 10" disclosed in Haerle or that the "light output measuring apparatus" of Ryczek is a "model of said illumination source". The interpretation of these measuring or control devices as models stretches the meaning of the term "model" beyond the breaking point. The exemplary embodiments of a model described in Applicant's specification, such as the RC circuit illustrated in FIG. 2, are designed to **represent** the varying illumination of the illumination source, without the need to measure the illumination. They do not merely **measure** the illumination. The McGraw-Hill Dictionary of Scientific and Technical Terms, 5<sup>th</sup> Edition, gives one definition of a model as "[a] mathematical or physical system, obeying certain specified conditions, whose behavior is used to understand a physical, biological or social system to which it is analogous in some way." Haerle's "central unit 10" and Ryczek's "light output measuring apparatus" are not systems analogous to an illumination source, whose behavior is used to understand the illumination source, they are direct measurement systems. They are not analogous to the illumination source, they directly measure the output of the illumination source or the voltage across the illumination source. Applicants respectfully disagree that any of the cited references disclose or suggest a **model of said illumination source**.

Applicants also respectfully disagree that any of the cited references disclose or suggest **an exposure adjustment that is changed to compensate for changes in said illumination source as indicated by said model output**. None of the references disclose an exposure in an image capture device. In fact, it is noted the term "exposure" is not included once

in paragraphs 4 or 5, which detail the anticipation and obviousness rejections in the current Office Action mailed August 22, 2003. It is noted that the term "exposure" has a well-known meaning with respect to image capture devices, and this meaning does not extend to simply controlling the current through a light source that is being continuously used, as in the cited references. Several exemplary embodiments are described in Applicants' specification, such as at page 10, first paragraph, including turning on the illumination source only for the capture exposure time, or opening and closing a shutter during the capture exposure time.

The cited references, taken singly or in combination, do not disclose or suggest each and every limitation of claim 1. For at least the reasons discussed above, the Applicants believe that claim 1 is allowable over the cited references and respectfully request reconsideration.

Claim 2 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

**"The image capture device of claim 1 wherein said model has a model input and said model input is an indication of the on times and the off times of said illumination source."**

(Claim 2, emphasis added)

The rejection indicates that Haerle discloses "controlling the on-off times and current flow to the illumination source. (See FIG. 1)". However, this does not disclose or suggest a model of an illumination source where the **model input is an indication of the on times and the off times of said illumination source**. The switches (e.g.,

circuit device SP(n)) in the circuit of Haerle's FIG. 1 are not used as inputs to a model, but as output control devices.

Claim 3 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The image capture device of claim 2, further comprising:  
an ambient temperature sensor producing a sensed ambient temperature **wherein said exposure adjustment is also changed to compensate for said sensed ambient temperature.**"

(Claim 3, emphasis added)

None of the cited references appear to disclose or suggest using an ambient temperature sensor to adjust an exposure. The text of the rejection cites "Pashley", although this reference is not included in the statement of the rejection. Pashley et al., U.S. Patent 6,127,783, cited in form PTO-892, has been carefully reviewed, but does not disclose an ambient temperature sensor. It is noted that the text of the rejection refers to columns 2, 4, 5, 6 and 8, but Pashley only contains 4 columns, so it appears that an error has been made in the rejection. In any case, none of the references relied on in the rejection or cited in form PTO-892 appear to disclose or suggest an ambient temperature sensor that is used as an input to an exposure adjustment. The only ambient temperature sensor in the cited references appears to be in the Prior Art section of Ryczek, and is used in a color sensing evaluation device, not an image capture device, and is used to maintain a predetermined intensity in a light transmitter (Ryczek, col. 1, lines 12-47), not to control an exposure.

Dependent claim 4 ultimately depends upon independent

claim 1 which is allowable over the cited art as discussed above. This dependent claim is likewise in condition for allowance at least because it depends on an allowable independent claim. However, dependent claim 4 is  
5 independently allowable at least in that it recites particular features which, when combined with the elements of the independent claim, are not disclosed or suggested in the cited references.

Claim 5 is believed allowable as depending from an  
10 allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The image capture device of claim 4 **wherein said model of said illumination source comprises a capacitor and a resistor.**"

15 (Claim 5, emphasis added)

As discussed above, the cited references do not disclose or suggest a model, therefore they cannot disclose a model comprising a capacitor and resistor. Although various circuits in the cited references include resistors and  
20 capacitors, none are arranged as a model of an illumination source. The rejection appears to go so far as to equate the claimed hardware model with any circuit containing resistors or capacitors. (See paragraph 5, Office Action mailed August 22, 2003) Applicants respectfully but strongly disagree with  
25 this statement. Clearly, every circuit containing resistors or capacitors **does not** act as a model whose behavior is used to understand a system to which it is analogous in some way.

Claim 6 is believed allowable as depending from an allowable base claim and is further believed allowable in that  
30 the cited references do not disclose or suggest:

"The image capture device of claim 4 **wherein said model of said illumination source comprises an inductor and a resistor.**"

(Claim 6, emphasis added)

5 Applicants repeat the arguments set forth above with respect to claim 5, but specifically directed to the image capture device of claim 6. Furthermore, the term "inductor" does not appear a single time in Haerle, Ryczek or Tanaka.

10 Claim 7 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The image capture device of claim 4 **wherein said exposure adjustment changes said on times of said illumination source.**"

15 (Claim 7, emphasis added)

As discussed above, none of the cited references disclose an exposure adjustment. Furthermore, none of the cited references change the on time of an illumination source to adjust an exposure.

20 The Invention of Claim 8

The cited references do not disclose or suggest:

"A method of compensating for changes in an illumination source, comprising:

**modeling said illumination source; and,**

25 **adjusting an exposure to compensate for changes in said illumination source as indicated by said modeling.**"

(Claim 8, emphasis added)

Applicants repeat the arguments for allowability set forth above with respect to claim 1, but specifically directed to the method set forth in claim 8. That is, the cited references do not disclose or suggest modeling an illumination source, rather, they **measure** an illumination source. The cited references also do not disclose or suggest adjusting an exposure based on the modeling.

Claim 9 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The method of claim 8 **wherein said modeling has an input that is an indication of the on times and the off times of said illumination source.**"

(Claim 9, emphasis added)

Applicants repeat the arguments for allowability set forth above with respect to claim 2, but specifically directed to the method set forth in claim 9.

Claim 10 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The method of claim 9 further comprising:  
sensing an ambient temperature; and,  
**adjusting said exposure to compensate for said ambient temperature.**"

(Claim 10, emphasis added)

Applicants repeat the arguments for allowability set forth above with respect to claim 3, but specifically directed to the method set forth in claim 10.

Dependent claim 11 ultimately depends upon independent claim 8 which is allowable over the cited art as discussed above. This dependent claim is likewise in condition for allowance at least because it depends on an allowable independent claim. However, dependent claim 11 is independently allowable at least in that it recites particular features which, when combined with the elements of the independent claim, are not disclosed or suggested in the cited references.

Claim 12 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

**"The method of claim 11 wherein said modeling is performed by charging and discharging a capacitor."**

(Claim 12, emphasis added)

Applicants repeat the arguments for allowability set forth above with respect to claim 5, but specifically directed to the method set forth in claim 12.

Dependent claim 13 ultimately depends upon independent claim 8 which is allowable over the cited art as discussed above. This dependent claim is likewise in condition for allowance at least because it depends on an allowable independent claim. However, dependent claim 13 is independently allowable at least in that it recites particular features which, when combined with the elements of the independent claim, are not disclosed or suggested in the cited references.

Claim 14 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:



"The method of claim 11 wherein said modeling is performed by energizing and de-energizing an inductor."  
(Claim 14, emphasis added)

Applicants repeat the arguments for allowability set forth above with respect to claim 6, but specifically directed to the method set forth in claim 14.

Dependent claim 15 ultimately depends upon independent claim 8 which is allowable over the cited art as discussed above. This dependent claim is likewise in condition for allowance at least because it depends on an allowable independent claim. However, dependent claim 15 is independently allowable at least in that it recites particular features which, when combined with the elements of the independent claim, are not disclosed or suggested in the cited references.

The Invention of Claim 16

The cited references do not disclose or suggest:

"An article of manufacture comprising a program storage medium having computer readable program code means embodied therein for causing the adjustment of an exposure, the computer readable program code means in said article of manufacture comprising:

computer readable program code means for causing a computer to read an indication of an illumination sources brightness from a model;

computer readable program code means for causing said computer to adjust said exposure based on said indication of said illumination sources brightness."

(Claim 16, emphasis added)

Applicants repeat the arguments for allowability set forth above with respect to claim 1, but specifically directed to the article of manufacture set forth in claim 16. That is, the cited references do not disclose or suggest **reading an**  
5 **indication of an illumination sources brightness from a model**, rather, they **measure** an illumination source. The cited references also do not disclose or suggest causing a computer to adjust an exposure based on the indication.

Claim 17 is believed allowable as depending from an  
10 allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The article of manufacture of claim 16 further comprising:

**computer readable program code means for causing**  
15 **said computer to turn on and turn off said illumination source."**

(Claim 17, emphasis added)

Although Ryczek discloses a microprocessor in a feedback loop for regulating the light power output of a light source  
20 (see Ryczek Abstract, FIG. 1), Ryczek does not disclose that the microprocessor is controlled by computer readable program code for turning on and off the illumination source. Ryczek's light source may just as well be turned on and off using the current source 30.

25 Claim 18 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The article of manufacture of claim 17 further comprising:

**computer readable program code means for causing said computer to indicate to said model the on times and off times of said illumination source."**

(Claim 18, emphasis added)

5 Applicants repeat the arguments for allowability set forth above with respect to claim 2, but specifically directed to the article of manufacture set forth in claim 18. The cited references do not disclose or suggest computer readable program code means for causing computer to indicate to a model  
10 the on and off times of an illumination source.

Claim 19 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

15 "The article of manufacture of claim 18 further comprising:

computer readable program code means for causing said computer to obtain an indication of an ambient temperature; and,

20 **computer readable program code means for causing said computer to adjust said exposure based on said indication of said ambient temperature."**

(Claim 19, emphasis added)

25 Applicants repeat the arguments for allowability set forth above with respect to claim 3, but specifically directed to the article of manufacture set forth in claim 19.

Dependent claim 20 ultimately depends upon independent claim 16 which is allowable over the cited art as discussed above. This dependent claim is likewise in condition for allowance at least because it depends on an allowable

independent claim. However, dependent claim 20 is independently allowable at least in that it recites particular features which, when combined with the elements of the independent claim, are not disclosed or suggested in the cited references.

Claim 21 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The article of manufacture of claim 20 **wherein said model is a series resistor-capacitor circuit and said indication of said illumination sources brightness is obtained from the voltage across said capacitor.**"

(Claim 21, emphasis added)

Applicants repeat the arguments for allowability set forth above with respect to claim 5, but specifically directed to the article of manufacture set forth in claim 21. The cited references do not disclose or suggest a model comprising a series resistor-capacitor circuit, nor do they disclose or suggest that an indication of the brightness of an illumination source may be obtained from the voltage across the capacitor in the model.

Claim 22 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The article of manufacture of claim 20 **wherein said model is a series resistor-inductor circuit.**"

(Claim 22, emphasis added)

Applicants repeat the arguments for allowability set

forth above with respect to claim 6, but specifically directed to the article of manufacture set forth in claim 22. The cited references do not disclose or suggest a model comprising a series resistor-inductor circuit. In fact, the term  
5 "inductor" does not appear a single time in Haerle, Ryczek or Tanaka.

The Invention of Claim 23

The cited references do not disclose or suggest:

**"An image capture device, comprising:**

10       illumination means;

**modeling means, said modeling means producing a  
modeling means output that is indicative of said  
illumination means relative brightness; and,**

15       **exposure adjustment means for changing an exposure  
to compensate for changes in said relative brightness of  
said illumination means as indicated by said modeling  
means output."**

(Claim 23, emphasis added)

Applicants repeat the arguments for allowability set  
20 forth above with respect to claim 1, but specifically directed to the image capture device set forth in claim 23.

Claim 24 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

25       **"The image capture device of claim 23 wherein said  
modeling means has a modeling means input and said  
modeling means input is an indication of the on times and  
the off times of said illumination means."**

(Claim 24, emphasis added)

Applicants repeat the arguments for allowability set forth above with respect to claim 2, but specifically directed to the image capture device set forth in claim 24.

5        Claim 25 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The image capture device of claim 24, further comprising:

10        ambient temperature sensor means for producing a sensed ambient temperature **wherein said exposure is also changed to compensate for said sensed ambient temperature.**"

(Claim 25, emphasis added)

15        Applicants repeat the arguments for allowability set forth above with respect to claim 3, but specifically directed to the image capture device set forth in claim 25.

20        Dependent claim 26 ultimately depends upon independent claim 23 which is allowable over the cited art as discussed above. This dependent claim is likewise in condition for allowance at least because it depends on an allowable independent claim. However, dependent claim 26 is independently allowable at least in that it recites particular features which, when combined with the elements of the independent claim, are not disclosed or suggested in the cited references.

25        Claim 27 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

"The image capture device of claim 26 **wherein said**

**modeling means comprises at least a capacitor and a resistor."**

(Claim 27, emphasis added)

5 Applicants repeat the arguments for allowability set forth above with respect to claim 5, but specifically directed to the image capture device set forth in claim 27.

Claim 28 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

10 "The image capture device of claim 26 **wherein said modeling comprises at least an inductor and a resistor.**"  
(Claim 28, emphasis added)

15 Applicants repeat the arguments for allowability set forth above with respect to claim 6, but specifically directed to the image capture device set forth in claim 28.

Claim 29 is believed allowable as depending from an allowable base claim and is further believed allowable in that the cited references do not disclose or suggest:

20 "The image capture device of claim 26 **wherein said exposure is adjusted by changing said on times of said illumination source.**"  
(Claim 29, emphasis added)

25 As discussed above, the cited references do not disclose or suggest adjusting an exposure in an image capture device. The cited references therefore also do not disclose or suggest adjusting an exposure by changing the on time of an illumination source. Again, the cited references are directed

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at regulating the output of light sources under continuous use.

All of the currently pending claims are believed to be in condition for allowance, and the Applicants respectfully request that a timely Notice of Allowance be issued.

Dated: 12/02/03

Respectfully submitted,  
KLAAS, LAW, O'MEARA & MALKIN, P.C.

By:

  
Guy K. Clinger, Esq.  
Registration No. 42,422  
1999 Broadway, Suite 2225  
Denver, CO 80202  
(303) 298-9888  
Fax: (303) 297-2266

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